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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,015	02/16/2001	Frank Nico Lieven Op'T Eynde	Q62388	1583

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SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue N. W.
Washington, DC 20037-3213

EXAMINER

PAREKH, NITIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 12/19/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/784,015

Applicant(s)

Eyende et al

Examiner

Nitin Parekh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Feb 16, 2001

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-12 is/are pending in the application

4a) Of the above, claim(s) _____ is/are withdrawn from consideration

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-12 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirements

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4

20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 3, 5 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeshi (Japanese Pat. 09237867, IDS paper #3).

Regarding claim 1, Takeshi discloses a packaged integrated circuit (PIC) device/module comprising:

- a radio frequency (RF)/high frequency component/device included in an IC die (ICD- 9 in Fig. 3) characterized in that RF antenna (RFA-3 in Fig. 3) is also included in the PIC, and
- the RFA being excluded/separated from the ICD and is formed/constituted by a planar metal object/pattern (see English Translation: MEANS, section 0024, pp. 2 of 2) separated from a ground metal planes (5, 12, etc. in Fig. 3; see English Translation: MEANS, section 0012, 0014, 0016, etc.; pp. 1 of 2) by an insulating/dielectric layers such as a ceramic (2 in Fig. 3; see English Translation: MEANS, section 0024, etc.; pp. 2 of 2) which is a part of the ICP, and
- the RFA being coupled to the ICD using wire bonding (Fig. 3)

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(Fig. 3 and 1; pp. 1-5; see English Translation of various sections including Detailed description, Means and Technique, etc.).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi (Japanese Pat. 09237867, IDS paper #3) in view of Masahito (Japanese Pat. 08250913, IDS paper #3), Koichi (Japanese Pat. 63181505, IDS paper #3), Houghton et al (US Pat. 6282095) and Mussler (US Pat. 4733245).

Regarding claims 4 and 9-11, Takeshi fails to specify the PIC being characterized in that the RFA is applied on a metal lead frame and PIC being a ball grid array (BGA), quad flat pack (QFP) or small outline package (SOP) respectively.

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Masahito teaches forming a RFA on a conventional metal lead frame/terminal (203 in Fig. 13; Detailed Description pp. 1).

Houghton et al teach using conventional packaging technologies such as a BGA, SOP, peripheral QFP, etc. in a RF module (Col. 5, line 15-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate a RFA on a metal lead frame and PIC being a ball grid array (BGA), quad flat pack (QFP) or small outline package (SOP) to achieve the desired external connection capability using Masahito and Houghton et al's structures in Takeshi's RF package.

5. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi (Japanese Pat. 09237867, IDS paper #3) in view of Koichi (Japanese Pat. 63181505, IDS paper #3) and Yoshitaka (Japanese Pat. 6085530, IDS paper #3).

Regarding claims 6-8, as explained above for claim 5, Takeshi fails to specify forming the RFA using a metal slot pattern consisting of a first S-shaped slot or a first slot and a second S-shaped slot which is rotated 90 degrees with respect to the first one.

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It is conventional in a high frequency RF devices to form RFA using a metal slot pattern in various shapes, configurations and dimensions. Koichi (Fig. 2; pp. 1-4) and Yoshitaka (Fig. 1; pp. 1-6) teach forming a RFA having slot patterns including S-shaped slot and strip-line configuration respectively with predetermined dimensions to achieve the desired resonance frequency/impedance characteristics.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate a RFA using a metal slot pattern consisting of a first S-shaped slot or a first slot and a second S-shaped slot which is rotated 90 degrees with respect to the first one to achieve the desired resonance frequency/impedance characteristics and to improve the transmission signal using Koichi and Yoshitaka's RFA design in Takeshi's RF package.

Papers related to this application may be submitted directly to Art Unit 2811 by facsimile transmission. Papers should be faxed to Art Unit via Technology Center 2800 fax center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number in (703) 305-3410. The examiner can be normally reached on Monday-Friday from 08:30 am-5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The fax number for the organization where this application or proceeding is assigned is (703) 308-7722 or 7724.

Nitin Parekh

12-12-01

Tom Thomas
TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800